
Measuring mental well-being in digitally transforming higher education: a conceptual framework

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Abstract

Purpose – As higher education institutions undergo rapid digital transformation, addressing the effects of digitalization on employees' mental well-being has become crucial for sustaining resilient and inclusive academic communities. The assessment of well-being in these contexts remains fragmented, lacking clear guidance on selecting context-sensitive assessment tools. This study aims to develop a conceptual framework for assessing the mental well-being of employees in digitally transforming academic environments and to explore how the perceived stress scale and burnout assessment tool can be conceptually adapted to reflect psychological effects of digitalization. This study addresses two questions: (1) Which psychological dimensions of mental well-being best capture the impact of digital transformation on employees in higher education institutions? (2) In what ways can the perceived stress scale and the burnout assessment tool be conceptually adapted to reflect digitalization-specific stressors?

Design/methodology/approach – The framework is developed through a systematic literature review of 22 peer-reviewed studies identified through Scopus and PubMed database searches, combined with a theoretical synthesis drawing on social support theory and social cognitive theory, as well as the principles of sustainable community development and social responsibility.

Findings – The framework identifies four key dimensions of well-being in higher education: psychological resilience, social interactions, digital work satisfaction and perceived institutional support. Mapping these against the PSS and BAT revealed partial overlaps but also gaps, particularly regarding social connectedness and organizational support.

Originality/value – The proposed framework offers conceptual foundations for assessing and promoting employees' mental well-being in response to the challenges posed by digital transformation.

Keywords Mental health, Digital transformation, Higher education, Sustainable development, Work-life balance

Paper type Conceptual paper

1. Introduction

Digital transformation has been changing the everyday operations of higher education institutions (hereinafter HEIs). With the widespread adoption of digital tools and the shift toward home office and hybrid work arrangements, there is a growing potential for flexibility and effectiveness (García-Martínez *et al.*, 2023). Szabó-Szentgróti *et al.* (2021) argue that the digital transformation provides a unique opportunity to reduce working hours by leveraging technological advancements to increase productivity (Szabó-Szentgróti *et al.*, 2021). Besides, research also suggests that digital technologies can allow HEIs to gather data on students more comprehensively, which could help identify sources of burnout (Jackson and Konzosné Szombathelyi, 2022). However, digital transformation has also brought new stressors, for example, digital overload and continuous availability, and blurred the boundaries between work and personal life. These factors might lead to elevated feelings of stress, fatigue, and

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burnout, affecting both individual well-being and institutional performance ([Abolusodun and Oyeleke, 2024](#)).

To nurture resilient, inclusive, and socially responsible academic communities, HEIs must recognize the importance of dealing with the mental well-being of employees. HEIs that fail to address the psychological implications of technostress risk a decrease in employee satisfaction and productivity ([Califf and Brooks, 2020](#)). Technostress reduces emotional and physical resources, leading to exhaustion, lower-level job satisfaction and work performance ([Wang et al., 2023](#)). Although several HEIs recognize the importance of mental well-being, the assessment of mental well-being, particularly in relation to digitalization, remains underexplored and fragmented. Existing approaches, in many cases, are superficial and lack a holistic perspective that considers the unique stressors associated with the increasing use of digital tools and platforms.

The Perceived Stress Scale ([Cohen et al., 1983](#)) – hereinafter PSS – and the Burnout Assessment Tool ([Schaufeli et al., 2020](#)) – hereinafter BAT – are two widely used instruments that measure stress and burnout. These tools provide robust metrics; however, they were not specifically designed to capture the psychological effects of digitalization. Therefore, this paper recognizes the need for a conceptual framework that integrates these instruments with those key dimensions of mental well-being that are influenced by digital transformation.

This paper addresses this gap by proposing a conceptual framework for assessing the mental well-being of employees in HEIs with a special focus on digitalized work environments. Incorporating Social Support Theory ([Cohen and Wills, 1985](#)) and Social Cognitive Theory ([Bandura, 1986](#)), the study explores how the PSS and BAT tools can be conceptually adapted to reflect the psychological impacts of digitalization in the workplace.

The paper seeks to answer the following two research questions.

- (1) Which psychological dimensions of mental well-being best capture the impact of digital transformation on employees in higher education institutions?
- (2) In what ways can the Perceived Stress Scale and the Burnout Assessment Tool be conceptually adapted to reflect digitalization-specific stressors?

2. Conceptual background and theoretical foundations

2.1 Conceptualizing mental well-being

Identifying a universally accepted definition of well-being is challenging. [Dodge et al.](#) describe it as a concept that remains poorly defined. They suggest defining well-being as a state of equilibrium or balance, which can be influenced by life events or challenges ([Dodge et al., 2012](#)). Mental well-being is commonly understood as a subset of overall well-being that refers specifically to an individual's emotional, psychological, and cognitive functioning. The [World Health Organization \(2022\)](#) defines mental well-being as “Mental health is a state of mental well-being that enables people to cope with the stresses of life, realize their abilities, learn well and work well, and contribute to their community.” ([WHO, 2022](#)).

2.2 Mental well-being of higher education employees

Workplace well-being has become an increasingly important topic across different professions ([Adnan et al., 2023](#)). Workplace stress can arise from a range of physical and emotional demands, including communication challenges, limited organizational resources, and difficulties in maintaining work-life balance ([Gilstrap et al., 2019](#)). Although these challenges are present across many occupational contexts, they may manifest in distinct ways within specific sectors ([Adnan et al., 2023](#)).

In HEIs, employees may experience workplace stressors such as heavy workloads, multiple role expectations, and increasing administrative demands ([Winefield et al., 2003](#)). These pressures are often linked to the complex nature of work within universities. Academic staff

are typically required to balance multiple responsibilities, including teaching, research, administrative duties, and student support (Gillespie *et al.*, 2001). Administrative employees support institutional operations through a range of student-related, managerial, and administrative services (Szekeres, 2004; Whitchurch, 2008).

2.3 Digital transformation in higher education

In the context of higher education, digital transformation refers to more than solely extending the usage of technology. It refers to coordinated institutional changes. Gkrimpizi *et al.* (2024) define digital transformation in HEIs as an organizational shift, driven by emerging technologies, that encompasses internal processes, strategic direction, educational models, and stakeholder communication (Gkrimpizi *et al.*, 2024).

EDUCAUSE, a leading non-profit organization on educational technology, captures the strategic scope of transformation by describing it as “a series of deep and coordinated culture, workforce, and technology shifts that enable new educational and operating models and transform an institution’s business model, strategic directions, and value proposition” (EDUCAUSE, 2020).

Digital transformation is not merely a matter of technology. It entails a holistic way of rethinking the operation of an institution. It offers opportunities for innovation and, in many cases, improves efficiency. On the other hand, HEIs must also consider that it demands substantial adaptation.

2.4 Digital transformation: opportunities and challenges

Digital transformation in HEIs has both positive and negative effects on interpersonal relationships within academic communities. On the positive side, digital tools promote inclusivity and flexibility, allowing students to collaborate effectively across different schedules and learning styles (Allen and Seaman, 2013). Besides, asynchronous discussions give students additional time to compose their thoughts, resulting in deeper and more meaningful interactions (Means *et al.*, 2009). Remote participation also enables greater accessibility, especially for those who are more prone to social anxiety (Kenyon *et al.*, 2023).

However, these benefits are countered by reduced emotional engagement and weaker relationship depth in digital learning environments. The scarcity of in-person interaction between students and course instructors might lead to isolation and difficulties in building trust (Sutcliffe and Noble, 2022). Digital platforms may democratize participation, but the absence of non-verbal signals and the lack of emotions in digital communication can hinder the development of meaningful connections and social ties (Ober and Kochmanska, 2022). Relying heavily on digital tools can also impact social and professional skill-building, reducing opportunities for practicing emotional intelligence or reading body language (Ruben *et al.*, 2021). Additionally, excessive screen time can lead to digital fatigue and burnout (Frolova *et al.*, 2020), which could further undermine motivation and relationships between peers (Poppe and Kjekshus, 2023).

2.5 Digitalization and sustainable community development – from social and environmental perspectives

Digital transformation is a continuously evolving source of sustainable community development. Online collaboration tools present easily accessible platforms for common work and highly effective dissemination practices. From a social perspective, digitalization contributes to expanding access and participation by lowering barriers to involvement (Nosratabadi *et al.*, 2023). Though without equitable digital access, these benefits may be unevenly distributed, which could reinforce and not reduce social inequalities (Deng and El Hag, 2024). From an environmental perspective, digital transformation replaces paper-based processes with digital processes, lowering resource consumption and ecological footprints.

However, digitalization entails higher energy usage and a growing amount of e-waste (Goel *et al.*, 2024). These highlight that digital transformation is not inherently sustainable, but its contribution to sustainable community development depends on addressing both opportunities and challenges related to social equity and environmental impacts.

A sustainable community constantly evolves to address the social and economic needs of its residents while maintaining the environmental capacity to support them (Roseland, 2000). Hibbard and Chung Tang underscore that sustainable community development must go beyond environmental goals and should address social dimensions, such as community participation, institutional collaboration, and the empowerment of marginalized groups (Hibbard and Chung Tang, 2004). In our interpretation, at HEIs, the main goal of sustainable community development is to enhance institutional well-being in order to foster deeper community engagement and support inclusive, long-term development initiatives.

2.6 Theoretical foundations

Individuals' mental well-being is strongly influenced by the quality of their social relationships (Gillespie *et al.*, 2001). Emotional support – from family, friends, or colleagues – serves as a protective layer against stress. This plays an important role in reducing a sense of isolation. Besides, it also enhances psychological resilience. Social Support Theory emphasizes that such relationships not only reduce the negative effects of stress but also enable individuals to adapt to challenges more effectively (Cohen and Wills, 1985). Meaningful interactions in the workplace improve collaboration and enhance job satisfaction and motivation. This perspective is particularly relevant for understanding the role of social interaction and institutional support in maintaining employees' psychological resilience.

Social Cognitive Theory explains how individuals learn from each other and adapt through observation and imitation. This theory holds that people acquire coping strategies by observing and learning from others (Bandura, 1986). Those workplaces that encourage open communication, knowledge exchange, and constructive feedback have been proven to be an environment for their employees to develop self-efficacy. Self-efficacy lowers stress levels and promotes emotional well-being (Gibbs, 2017). From this perspective, developing self-efficacy and adaptive coping strategies also contributes to building employees' psychological resilience.

The increasing adoption of technology-driven tools and smart learning technologies has improved the efficiency of teaching, learning, and administrative processes. However, heavy reliance on digital platforms and tools diminishes face-to-face interactions and strains interpersonal relationships. This could result in elevated levels of stress (Abolusodun and Oyeleke, 2024). In-person contact is still important for building trust and social connections. These cannot be fully replaced by virtual communication (Grant, 2016).

The relationship between digital work environments and employee well-being can also be interpreted through the perspective of the Job Demands-Resources Model (JD-R Model). This theory explains employee well-being through the balance between job demands and job resources. Job demands refer to physical, psychological, or organizational aspects of work that require sustained effort. Job resources incorporate organizational support, autonomy, and development opportunities that assist employees in achieving professional goals and reducing stress. When job demands are high and resources are limited, employees are more likely to experience stress and burnout, whereas sufficient resources can support engagement and well-being (Demerouti *et al.*, 2001). In addition, a broader perspective on mental well-being can be gained by considering research on burnout. Maslach *et al.* (2001) conceptualize burnout as a prolonged response to chronic emotional and interpersonal stressors at work, typically characterized by exhaustion, cynicism, and reduced professional efficacy (Maslach *et al.*, 2001). Together, these theoretical perspectives highlight the importance of balancing work-related demands with adequate organizational and social resources to support employees' mental well-being.

2.7 Social responsibility and employee mental well-being

Social responsibility in HEIs incorporates not only external commitments, such as considering environmental sustainability and fostering public engagement, but also the internal obligation to nurture the mental well-being of employees. This approach is closely linked to the principles of internal corporate social responsibility (hereinafter ICSR). ICSR advocates for ethical, fair, and supportive workplace practices that promote employee well-being (Wolf *et al.*, 2024).

The link between CSR and improved mental health outcomes has been validated by empirical findings. An academic study of South Korean workers found that CSR perceptions alleviated employee depression by enhancing the meaningfulness of work. This effect was found to be strengthened among employees with high prosocial motivation (Kim *et al.*, 2023).

Considering ICSR recommendations might be beneficial for HEIs. Implementing digital wellness strategies, such as inclusive technology access, psychological safety in online work, and transparent digital workload policies, might help in finding a healthy balance between work and private life and could contribute to reducing occupational stress.

2.8 Measuring the mental health effects of digitalization

Two widely known tools for assessing psychological well-being are the Perceived Stress Scale, PSS (Cohen *et al.*, 1983), and the Burnout Assessment Tool, BAT (Schaufeli *et al.*, 2020). The PSS measures the degree to which individuals perceive their lives as stressful. It was designed to map feelings of unpredictability and overload (Cohen *et al.*, 1983). The BAT was developed to evaluate burnout symptoms such as exhaustion, mental distance, emotional impairment, and cognitive difficulties (Schaufeli *et al.*, 2020). Neither of these tools was originally developed specifically for digital work contexts. Literature suggests adding context-specific items – such as questions about continuous online availability, digital interruptions, and workload complexity – to enhance the applicability of these instruments to reflect the impact of digitalization (Argyriadi *et al.*, 2025).

More recently, the Digital Stress Scale (DSS) has been introduced as an instrument specifically designed to capture digital stress in professional contexts (Argyriadi *et al.*, 2025). The DSS includes four subscales: digital fatigue, technostress, digital disengagement, and work–life digital boundaries. These dimensions aim to capture the psychological strain associated with continuous digital connectivity, digital workload, and the challenges of maintaining clear boundaries between professional and personal life (Argyriadi *et al.*, 2025).

2.9 Research gap and need for adaptation

The PSS and BAT are valuable tools for assessing overall stress and burnout; however, they were not created to measure the adverse effects of digitalization on mental well-being. The DSS is an instrument specifically developed and psychometrically validated among licensed mental health professionals and has demonstrated strong reliability and convergent validity with established measures such as perceived stress and burnout; however, its focus is limited to mental health professionals. At the same time, the PSS and BAT were not designed to address the specific psychological challenges associated with digital work environments.

These limitations reveal a gap: the PSS and BAT do not fully capture the psychological effects of digital work in higher education contexts. Moreover, current assessment approaches rarely link employee mental well-being to broader institutional goals such as social responsibility and sustainable community development. As a result, higher education institutions lack context-sensitive assessment frameworks that could support evidence-based strategies for protecting employee well-being in digitally transforming work environments. Adapting these tools to digital contexts and embedding them within a broader conceptual framework that reflects HEIs' social mission may provide a more comprehensive basis not only for academic research but also for managerial decision-making related to employee well-being, organizational support, and sustainable institutional development.

3. Methodology

3.1 Research approach

A conceptual research design is adopted in this study to integrate existing theoretical perspectives and measurement approaches to develop a structured framework for assessing employee mental well-being in digitally transforming HEIs. The framework is developed through a combination of a systematic literature review and a theoretical synthesis, supported by Social Support Theory (Cohen and Wills, 1985) and Social Cognitive Theory (Bandura, 1986). These theories provide insights into how individual coping mechanisms and social environments influence psychological resilience and well-being.

Building on the reviewed literature and theoretical foundations, the study proposes a structured framework that conceptually adapts existing measurement tools, namely the PSS and the BAT instruments, to reflect psychological challenges induced by digitalization. In addition, the framework incorporates principles of sustainable community development and internal social responsibility, emphasizing how institutional well-being and inclusive practices are essential for fostering resilient and supportive academic communities.

3.2 Systematic literature review

In August 2025, thorough searches of the Scopus and PubMed databases were conducted with the aim of identifying relevant literature. The study selection process followed the Preferred Reporting Items for Systematic Reviews and Meta-Analysis – PRISMA (Page *et al.*, 2021) method (see Figure 1). Articles covering the following three key concepts were considered for inclusion. Concept 1 relates to mental well-being, concept two focuses on higher education, and concept 3 refers to digitalization.

The following keywords were used for each concept. For concept one: mental health, wellbeing, stress and burnout. For concept two: higher education, university. For concept three: digitalization, technostress. Keywords within each concept were combined using the Boolean operator OR, while the three concepts were connected using AND.

The initial search yielded 62 records from Scopus and 100 records from PubMed. After removing 23 duplicate records, the remaining studies were screened for eligibility.

The collected literature was refined by excluding sources that were not written in English, were published outside of the 2020 and 2025 period, or were not in their final publication stage. Based on these criteria, 25 studies were excluded. 4 reports could not be retrieved. 110 reports were assessed for eligibility. After a careful review of the title and the abstract of the selected literature, manual filtering was applied to select the most relevant pieces. This process resulted in a final list of 22 selected articles for the review. Systematic reviews and feasibility studies were excluded. Due to differences in research design – such as objectives and measurement methods - meta-analysis of the chosen articles was not feasible. Therefore, the findings were integrated through qualitative data synthesis.

3.3 Framework development

The conceptual framework was developed by synthesizing findings from the systematic literature review with theoretical insights from Social Support Theory and Social Cognitive Theory. In addition, principles of sustainable community development and social responsibility were incorporated to reflect broader institutional contexts in which employee well-being is embedded.

The following four core dimensions of mental well-being, relevant to digitally transforming work environments, were identified: psychological resilience, social interactions, digital work satisfaction, and perceived institutional support. These dimensions were derived through an interpretative synthesis of the reviewed literature. Elements associated with employee well-being in digitally transforming work environments were identified across the selected studies and compared to detect recurring themes.

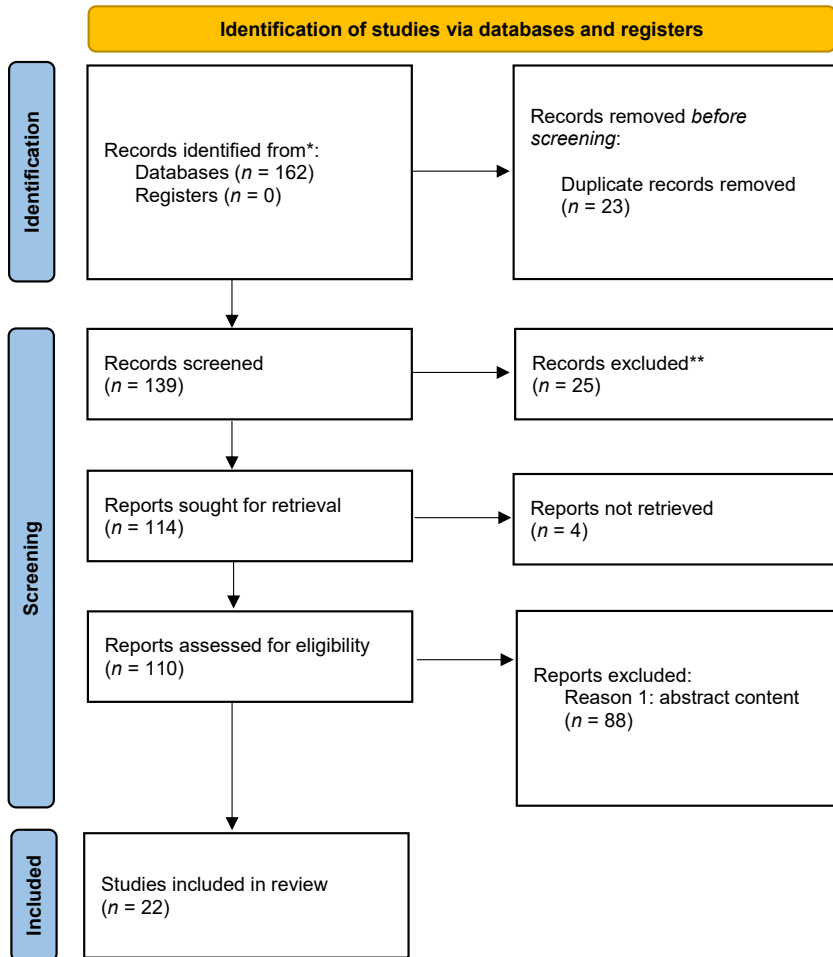


Figure 1. PRISMA 2020 flow diagram of study selection. Source: Authors' own work, [Page et al. \(2021\)](#)

Conceptually related constructs were then grouped into broader categories from which the four dimensions emerged.

These dimensions were subsequently interpreted through the lens of Social Support Theory and Social Cognitive Theory, which provided the theoretical grounding for the proposed framework. Psychological resilience was conceptualized through Social Cognitive Theory – in particular, exploring the role of self-efficacy and self-regulation in assisting individuals to adapt to digital stressors. Social interactions were examined through Social Support Theory, which highlights the protective effects of emotional, informational, and instrumental support in mitigating stress. Digital work satisfaction was also explored through Social Cognitive Theory, where self-efficacy and positive outcome expectations are key to intrinsic motivation and satisfaction with digital tasks. Finally, perceived institutional support was interpreted through Social Support Theory, aligning with concepts of organizational support and the importance of a supportive climate in maintaining employee well-being.

These dimensions jointly provide the conceptual basis for interpreting and contextually adapting existing well-being assessment tools, particularly the PSS and the BAT, to better reflect the psychological implications of digital transformation in HEIs. From the perspective of the Job Demands–Resources model, these dimensions capture both the demands associated with digitalized work environments and the organizational and social resources that support employee well-being.

4. Literature review

4.1 Data synthesis

The synthesis of selected studies highlights key findings and points out recurring patterns and notable differences. A narrative synthesis was used to integrate the findings. Based on the systematic literature review, four key dimensions of mental well-being were identified as essential for understanding the psychological effects of digital transformation in higher education.

4.2 Outcomes of the review

The analysis of 22 studies identified four interrelated dimensions: psychological resilience, social interactions, digital work satisfaction, and perceived institutional support. The reviewed literature indicates that these dimensions are closely interconnected and mutually reinforcing. For example, insufficient institutional support may weaken social interactions and reduce digital work satisfaction, which may ultimately undermine psychological resilience. These patterns suggest that employee well-being in digitally transforming higher education environments emerges from the interaction between individual coping capacities, social relationships, and institutional conditions.

The dimensions show that mental health outcomes are shaped not only by individual coping resources but also by the quality of social ties. Organizational practices and structural support play an equally important role. The reviewed studies consistently show that when organizational support mechanisms are weak, employees are more vulnerable to technostress, digital overload, and reduced work satisfaction, whereas supportive institutional environments can strengthen resilience and mitigate negative psychological outcomes.

These findings highlight the need for a balanced approach in which universities foster resilience and digital skills, strengthen collegial networks, manage digital workloads, and provide adequate institutional resources. In addition to potential contribution to theoretical understanding, the review offers a reference for adapting existing measures – the PSS and the BAT instruments – to the digital higher education context.

5. Results: proposed conceptual framework

5.1 Discussing the dimensions

Below, each dimension is discussed in terms of its theoretical grounding and role within the proposed framework.

5.1.1 Psychological resilience. The rapid technological advancement, constant online availability, and digital overload place new demands on employees. Resilience is supported by self-efficacy and self-regulation, which enable individuals to manage such challenges more effectively (Bandura, 1986). Empirical research in higher education confirms this. Faculty members with stronger coping resources and higher resilience were better able to manage technostress and burnout during digital transitions (Wang and Yao, 2025; Marrinhas *et al.*, 2023). Studies on anxiety, depression, and stress among students also highlighted resilience as a protective factor moderating the negative impact of digital overload (Afshar Jahanshahi and Polas, 2023; Deng *et al.*, 2023; Ooi *et al.*, 2022). The reviewed literature highlights that psychological resilience supports mental well-being, which is especially important under

conditions of constant digital availability. In this framework, psychological resilience refers to the capacity of higher education employees to adapt positively to digital stressors and digital overload and maintain functional well-being under conditions of uncertainty and continuous change.

5.1.2 Social interactions. Digitalization has altered the traditional way of interactions at HEIs. Although digitalization has brought greater accessibility, it has also reduced emotional connectedness and increased the risks of feeling isolated. Suggested by the Social Support Theory, emotional and informational support from peers and supervisors promotes effective coping (Cohen and Wills, 1985). Studies in higher education settings confirm this. Limited face-to-face engagement during digital transformation weakened collegial trust and community cohesion. In addition, weakened personal connections led to isolation and reduced satisfaction (Romero-Rodríguez *et al.*, 2022; Srivastava, 2023). Conversely, social support from colleagues was repeatedly shown to reduce stress and enhance personal coping strategies (Cai *et al.*, 2024). In a study by Estrada-Munoz *et al.*, Chilean teachers described technostress as more manageable when supported by collegial networks (Estrada-Munoz *et al.*, 2021). The importance of social connectedness extended to students as well, where unmet interpersonal needs increased vulnerability to anxiety and depression (Ooi *et al.*, 2022). Therefore, social interactions have been considered to help preserve well-being by protecting against isolation and digital fatigue. In this framework, social interactions refer to the quality and depth of supportive relationships among colleagues and students.

5.1.3 Digital work satisfaction. As teaching, research, and administration increasingly rely on digital platforms, employee satisfaction is highly influenced by the demands of digital tasks. Social Cognitive Theory emphasizes that outcome expectations and perceived competence influence job satisfaction and motivation (Bandura, 1986). Studies show that role overload and digital fatigue undermine satisfaction and increase burnout risk (Zhang *et al.*, 2025; Lin *et al.*, 2025). On the contrary, setting clear boundaries between work-related tasks and private life and using opportunities for recovery enhance digital work experiences (Hosseini *et al.*, 2023). Research on disengagement and cyberslacking also suggests that dissatisfaction with digital tasks can produce negative outcomes (Li and Liu, 2022). The findings suggest that digital conditions strongly affect how staff and students evaluate their work and study experiences, and digital work satisfaction depends on how well demands are balanced with support and recovery. In this framework, digital work satisfaction refers to the extent to which higher education employees perceive their digitally mediated tasks as meaningful and manageable.

5.1.4 Perceived institutional support. Digital transformation requires not only enhanced technological infrastructure but also organizational policies that ensure psychological safety, equitable workloads, and inclusive access to resources. Organizational Support Theory suggests that employees develop beliefs about the extent to which their organization values their contributions and cares for their well-being (Eisenberger *et al.*, 1986). Studies confirm that insufficient support exacerbates burnout and technostress (Sevic *et al.*, 2025; Tobia *et al.*, 2024). Faculty and staff reported higher burnout when organizational support for digital transformation was weak (Sevic *et al.*, 2025). On the other hand, relevant training, IT assistance, and clear digital workload policies reduce stress and enhance adaptation (Araya-Ugarte *et al.*, 2025; Verde-Avalos *et al.*, 2025; Suyo-Vega *et al.*, 2024). Research on remote work in Italian universities (Tobia *et al.*, 2024) and on post-COVID faculty adaptation (Suyo-Vega *et al.*, 2024) demonstrated that institutional training and resource provision were central in reducing digital fatigue. Studies consistently reveal that perceived institutional support moderates the relationship between digital stressors and negative well-being outcomes. Within this framework, perceived institutional support is understood as a moderator between digital stressors and mental health outcomes. It refers to the extent to which employees perceive their institution as providing adequate resources, training, and policies for adapting to digital transformation.

5.2 Mapping the framework to PSS and BAT

Before mapping the proposed framework to the PSS and BAT instruments, it is useful to briefly compare the focus of existing measurement tools used to assess stress, burnout, and digital stress (see [Table 1](#)).

The PSS ([Cohen et al., 1983](#)) and the BAT ([Schaufeli et al., 2020](#)) are two of the most commonly used instruments for assessing stress levels and burnout. Both provide psychometric properties and generalizable measures of psychological strain. On the other hand, neither of these instruments was originally designed for increasingly digitalized higher education environments. To assess the relevance of these instruments for digitally transforming higher education, the four dimensions of this framework were mapped against the PSS and BAT surveys (see [Table 2](#)). This conceptual comparison highlights areas of overlap and gaps where new or adapted items are needed. The PSS covers general stress measurement (unpredictability, uncontrollability, overload), which overlaps with resilience but omits social and institutional aspects. The BAT covers symptoms of burnout (exhaustion, distance, cognitive and emotional impairment), which indirectly touch on work satisfaction but exclude institutional and social resources. The mapping process identified two dimensions – social interactions and perceived institutional support – that are missing from both tools. Psychological resilience and digital work satisfaction are only partially represented. Therefore, an adapted assessment approach is needed, supplementing the PSS and BAT with context-specific items addressing stressors related to digital transformation.

5.3 The proposed framework

This study proposes a conceptual framework for assessing the mental well-being of employees in digitally transforming higher education. The framework encompasses four dimensions: psychological resilience, social interactions, digital work satisfaction, and perceived institutional support. These dimensions represent essential factors that protect against the adverse effects of digital stressors on employees' mental health. Together, they integrate both

Table 1. Comparison of the perceived stress scale, burnout assessment tool, and digital stress scale

Instrument	Focus	Dimensions measured	Relevance, limitations
Perceived Stress Scale (PSS) (Cohen et al., 1983)	Perceived stress in everyday life	Unpredictability, lack of control, perceived overload	Captures general stress perception but does not specifically address digital work conditions, institutional support, or social interaction in digital environments
Burnout Assessment Tool (BAT) (Schaufeli et al., 2020)	Burnout symptoms	Exhaustion, mental distance, emotional impairment, cognitive impairment	Measures burnout outcomes but does not explicitly measure digital workload conditions, social support, or institutional factors related to digital transformation
Digital Stress Scale (DSS) (Argyriadi et al., 2025)	Digital stress in professional contexts	Digital fatigue, technostress, digital disengagement, work-life digital boundaries	Addresses digital stressors such as technostress and digital fatigue but focuses primarily on digital stress and does not capture broader social and organizational dimensions of employee well-being (e.g. collegial interaction and institutional support)

Source(s): Authors' own work

Table 2. Conceptual mapping of the four well-being dimensions against the perceived stress scale and burnout assessment tool

Dimension	Relevant PSS items	Relevant BAT items	Identified gaps
Psychological resilience	PSS indirectly measures coping and self-efficacy: PSS-4 (<i>confidence in handling problems</i>), PSS-5 (<i>things going your way</i>), PSS-7 (<i>controlling irritations</i>), PSS-8 (<i>feeling on top of things</i>)	Indirectly reflected in exhaustion and emotional impairment (as signs of low resilience)	Neither instrument measures resilience as a positive capacity. No items on coping, adaptability, or self-regulation in digital contexts
Social interactions	Not addressed (PSS is individual-focused)	Not addressed (focuses on individual burnout symptoms)	No coverage of collegial relationships, peer support, online/offline connectedness, or digital isolation. Requires new items on social ties and sense of community in digital settings
Digital work satisfaction	PSS indirectly measures work satisfaction (not digital specific): PSS-2 (<i>control over important things</i>) and PSS-6 (<i>inability to cope with all tasks</i>). It captures overload, but not satisfaction	Indirectly reflected in cognitive/emotional impairment	No items on satisfaction with digital tasks or the organization and manageability of digitally mediated workloads
Perceived institutional support	Not represented in any PSS item	Not represented in any BAT item	No items capture institutional support

Source(s): Authors' own work

individual-level capacities, such as resilience, satisfaction, and contextual resources, such as social and institutional support.

The framework also establishes a theoretical pathway for adapting the PSS and the BAT to digitalized higher education contexts. While the PSS captures general stress perceptions and the BAT assesses burnout symptoms, both omit social and institutional aspects that are crucial in digitally mediated work. By incorporating digitalization-specific items – such as continuous online availability, digital interruptions, digital workload complexity, and institutional support – their applicability to higher education employees can be strengthened.

The Digital Stress Scale (Argyriadi et al., 2025) may directly inform this process. The DSS, though it was originally developed for mental health professionals, shows how context-specific items can capture digital stressors such as fatigue, technostress, disengagement, and boundary management. Building on these insights, the conceptual framework suggests combining the four key dimensions with the DSS to adapt the PSS and BAT for measuring occupational stress and burnout in digitalized higher education. Furthermore, this adaptation should be informed by considering sustainable community development and social responsibility, ensuring that interventions and measurement tools not only address individual well-being but also contribute to creating inclusive academic environments.

5.4 Example questionnaire items

To illustrate how the proposed framework could inform the adaptation of the PSS and BAT measurement tools, a set of example questionnaire items is presented (see Table 3). These items reflect digital work-related stressors and resources. The items are intended to support

Table 3. Example questionnaire items supporting the adaptation of the PSS and BAT

Instrument	Dimension	Example questionnaire item
PSS	Psychological resilience	I feel confident to manage work demands that rely heavily on digital technologies
PSS	Psychological resilience	I can adapt quickly when new digital tools are introduced in my work
PSS	Digital work satisfaction	Digital work demands often make my tasks feel overwhelming
PSS	Digital work satisfaction	I feel that the digital workload in my job is difficult to control
BAT	Social interactions	Working primarily through digital platforms reduces the quality of my interactions with colleagues
BAT	Social interactions	I feel socially disconnected from colleagues when most communication takes place online
BAT	Perceived institutional support	My institution provides sufficient support to help employees manage digital workload
BAT	Perceived institutional support	My institution offers adequate training for adapting to new digital technologies

Source(s): Authors' own work

future research on adapting existing well-being measurement tools to digital work environments.

6. Discussion

6.1 Theoretical contributions

This study contributes to the literature on mental well-being by integrating Social Cognitive Theory and Social Support Theory into a conceptual framework tailored to assess the mental health of employees, in terms of stress levels and burnout, in digitally transforming HEIs. While research on stress and burnout assessment recognizes individual psychological outcomes, the proposed framework highlights that well-being in digitalized academic environments is impacted by a broader set of factors. Specifically, it emphasizes both individual capacities – such as psychological resilience, digital work satisfaction – and contextual resources – such as social interactions and perceived institutional support.

The mapping exercise also contributes to the literature by illustrating how established instruments such as the PSS and BAT could be reinterpreted in the context of digital transformation. These tools provide measurement for general stress and burnout symptoms, particularly in relation to overload, exhaustion, and cognitive strain. The framework does not challenge their validity but instead proposes an alternative use: positioning them to capture well-being challenges due to digital transformation. In this view, these instruments can be extended with digitalization-specific items to reflect social and institutional aspects of work that are increasingly relevant in higher education.

6.2 Practical implications

The framework has implications for how HEIs can assess employee stress levels and burnout in the context of digital transformation. This paper argues that existing tools, such as the PSS and BAT, could be used in new ways when extended with digitalization-specific items. By integrating measures of resilience, satisfaction, social connectedness, and institutional support, adapted versions of these instruments would allow institutions to capture the full range of psychological experiences in digitally mediated work. Besides, each of the four dimensions highlights a domain where targeted interventions can be informed by such adapted measurement. Resilience points to the importance of strengthening coping strategies and digital self-efficacy. Social interactions highlight the value of collegial networks and mentoring to counteract isolation. Digital work satisfaction underscores the need for balanced

workloads and meaningful digital practices. Institutional support emphasizes the responsibility of HEIs to provide training, IT resources, and fair workload policies. By linking these domains to established assessment tools, the framework offers institutions a practical, theory-driven approach to managing employee well-being.

Beyond assessment, the proposed framework can also support institutional decision-making and targeted interventions. By identifying specific sources of digital stress – such as excessive digital workload, lack of institutional support, or weakened social interaction – higher education institutions can design evidence-based responses. For example, survey results based on the adapted instruments could inform HR strategies such as digital workload management policies, targeted training programs for digital competencies, mentoring initiatives to strengthen collegial networks, or institutional guidelines supporting work–life balance. The proposed framework can function as a diagnostic tool that enables universities to systematically identify well-being risks associated with digital transformation and develop interventions that promote healthier and more inclusive academic work environments.

7. Conclusions

This paper contributes by proposing a conceptual framework for assessing mental well-being in digitally transforming higher education. Relying on Social Cognitive Theory and Social Support Theory and considering the principles of sustainable community development and social responsibility, the framework identifies four interrelated dimensions that mediate the effects of digital stressors such as technostress, continuous availability, and the lack of work-life boundaries. These dimensions provide a holistic understanding of employee well-being by integrating both individual coping capacities and social and institutional resources.

The framework further advances methodological clarity by mapping these dimensions against two widely validated instruments, the PSS and the BAT, and by identifying conceptual gaps that require the inclusion of digitalization-specific items. While both tools provide robust foundations for assessing stress and burnout, the analysis demonstrates that they only partially cover the psychological effects of digitalization. The proposed framework, therefore, calls for the extension of these instruments through the inclusion of digitalization-specific items.

As a conceptual contribution, this study offers both scholars and higher education management recommendations for research and practice. For researchers, it provides a theoretical basis for adapting well-being instruments in digital contexts. For practitioners, it highlights key areas that can guide the design of interventions to mitigate the adverse effects of digital transformation.

8. Limitations and future research

This study is conceptual in nature and has several limitations. The analysis is based on a systematic literature review and theoretical synthesis. This approach supports the development of conceptual clarity and theoretical integration; however, future research should focus on empirical testing, such as developing and pilot testing digitalization-specific items that extend the PSS and BAT, providing initial psychometric evidence of their reliability and alignment with the proposed dimensions. Pilot studies conducted in HEIs could examine how well these adapted items capture the four dimensions identified in this study. Further research could also include quantitative validation studies aimed at assessing the psychometric properties of the adapted scales. Comparative studies across different higher education institutions or national contexts could provide additional insights into how digital work environments influence employee well-being. Besides, longitudinal research designs may help explore how digital transformation processes influence employee well-being over time and how institutional interventions—such as digital workload policies, training programs, or support mechanisms— affect the relationship between digital stressors and mental health outcomes.

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Further reading

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